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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/602,843

06/24/2003

Ramon A. Sanchez

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10/14/2004

DELPHI TECHNOLOGIES, INC.

M/C 480-410-202

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TROY, MI 48007

EXAMINER

HUANG, SIHONG

ART UNIT

PAPER NUMBER

2632

DATE MAILED: 10/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/602,843

Applicant(s)

SANCHEZ ET AL.

Examiner

Sihong Huang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2003.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-16 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/5/04, 6/24/03.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Lombard (FR 2 572 029 A1).

Regarding claim 1, Lombard disclosed a pneumatic tire pressure sensor unit (see Fig. 2), comprising: a sensor body (Fig. 2) comprising: a housing having a mounting surface (the surface where reference numeral 4a is pointing to in Fig. 2), a cavity (7); and a nipple (see reference numerals 5, 6, 26 in Fig. 2) sealingly connected to said housing at said mounting surface, said nipple being oriented in upstanding perpendicular relation to said mounting surface (clearly shown in Fig. 2), said nipple having a passage (opening 6) passing therethrough which communicates with said cavity (7); and a tire pressure sensor (8) located within said cavity; wherein said cavity (7) is sealed by said housing (the bottom rectangular shape housing in Fig. 2) and said nipple (6) such that said passage (6) provides exclusive communication between said cavity and air pressure external to said sensor body (see translated abstract and Fig. 1).

Regarding claim 9, Lombard disclosed a wheel (see Fig. 1) and pneumatic tire pressure sensor unit (Fig. 2) therefor, comprising: a wheel having a wheel rim (rim 1), said wheel rim having a hub-side (bottom side of rim 1 in Fig. 1) and an opposite tire-side (tire 3a

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and 3b), a port hole (where opening 6 is located) being formed in said wheel rim (clearly shown in Fig. 1); a sensor body (Fig. 2) as addressed in claim 1 above; wherein said nipple (opening 6) projects through said port hole (see Fig. 1), and wherein said housing (4a) and said tire pressure sensor (8) are located at said hub-side (bottom side in Fig. 1) of said wheel rim (rim 1, clearly shown in Fig. 1).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4, 5 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lombard (FR 2 572 029 A1).

Regarding claims 14 and 15, Lombard does not disclose a method for installing the pneumatic tire air pressure sensor unit to a pneumatic tire wheel. Lombard disclosed the end product after the installation. The claimed steps in claims 14 and 15 are logical installing steps. Since the sensor body and location of the sensor body in wheel rim of Lombard is very similar if not exactly the same as the present claimed tire pressure sensor, the tire pressure sensor of Lombard would have been installed to a tire wheel according to the logical installing steps as claimed in order to produce the end product of Lombard. Therefore, it would have been obvious to an ordinary person skilled in the art at the time of the invention to install the tire pressure sensor of Lombard to a tire wheel

according to the logical installing steps as claimed in claims 14 and 15 for a similar end product.

Regarding claim 16, Lombard does not disclose adhesively securing the sensor housing to the hub-side of the wheel rim. The sensor housing of Lombard is screwed (by screw 5) into the tire-side of the wheel rim from the hub-side of the wheel rim. However, applying adhesive material to additionally secure the sensor housing of Lombard in the rim would have been an obvious modification to the invention of Lombard for a more reliable attachment/mounting structure.

Regarding claim 5, Lombard does not spell out every claimed elements of the pressure sensor. However, Lombard disclosed a capacitive type of pressure-sensitive element 8, with a coil 10, an oscillating circuit whose resonant frequency depends on the pressure of the tire (see abstract). Therefore, the LC circuit can be considered/functioning as the claimed electronic circuit; the coil 10 (L) can be considered as the claimed wireless transmitter; the capacitor (C) can be considered as the claimed tire air pressure sensing element and the claimed power source as the capacitor (C) being charged and discharged according to the increasing and decreasing of air pressure. In addition, it is obvious to an ordinary person skilled in the art that different type of air pressure sensor can be employed in Lombard's invention, and therefore the claimed pressure sensor elements are obvious limitations to a conventional pressure sensor.

Regarding claim 4, Lombard does not disclose that the mounting surface has a convex contour. Lombard shows a flat mounting surface in Figs. 1 and 2. Providing a matching mounting surface in the sensor housing of Lombard to the rim for better fitting/matching

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the shape of the rim would have been an obvious modification to the sensor housing of Lombard since such modification does not affect the proper operation of the sensor.

5. Claims 2, 3, 6-8 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lombard (FR 2 572 029 A1) in view of Oshita et al. (US 5,526,861).

Regarding claim 2, 6 and 10, Lombard does not disclose that the nipple comprises: an annular flange at a distal end of said nipple; and a reduced cross-section portion located between said annular flange and said mounting surface. However, Oshita et al discloses such (flanges 4a and 4b, the reduced cross-section is between 4a and 4b). Lombard disclosed a screw (5) for attaching the sensor housing to the wheel rim. It is obvious to an ordinary person skilled in the art that a snap-in type of attachment means can be employed in place of the screw-in type in Lombard as taught by Oshita. Since both Lombard and Oshita disclose a similar tire air pressure sensor, they are from the same field of endeavor, thus the snap-in mounting structure as taught by Oshita would have been recognized as being pertinent to the apparatus of Lombard. Therefore, it would have been obvious to an ordinary person skilled in the art at the time of the invention to employ the snap-in mounting structure of Oshita in place of the screw-in mounting structure of Lombard to elastically sealing periphery edges of the mounting hole Aa on the rim A (see col. 3, lines 46-48 of Oshita).

Regarding claims 3, 8 and 11, Oshita disclosed a convex surface (2a), but does not disclose an annular flat. Oshita disclosed an angle (4a) instead of a flat which would fit different thickness rim. However, employing a flat would have been an obvious modification to the modified apparatus of Lombard and Oshita for a perfect fit if the

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thickness of the rim is known before hand. Therefore, it would have been obvious to an ordinary person skilled in the art at the time of the invention to employ an annular flat to the modified apparatus of Lombard and Oshita for a perfect fitting structure.

Regarding claim 7, see claim 4 above.

Regarding claim 12, see claim 16 above.

Regarding claim 13, see claim 5 above.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Prior art references Bridgestone Corp (JP 08207522 A) and Cantu et al. (US Pub #2002/0078741 A1) are cited to show wheel rim mounted tire air pressure sensors.

Prior art references Fukuyama et al. (EP 0 301 443 A1) and Furuichi et al. (US Pat. #5,814,725) are cited to show tire air pressure sensors housed outside or hub-side of wheel rim.

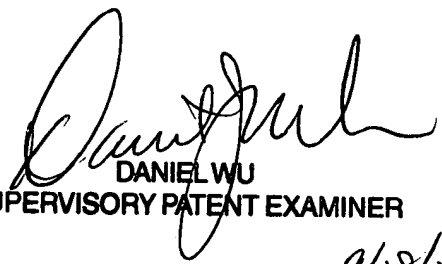
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sihong Huang whose telephone number is 571-272-2958. The examiner can normally be reached on Wed, Thu & Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel J. Wu can be reached on 571-272-2964. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. Huang
September 28, 2004


DANIEL WU
SUPERVISORY PATENT EXAMINER
9/28/04